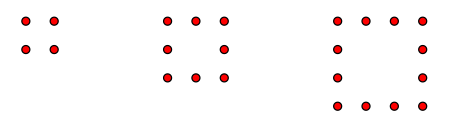
Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

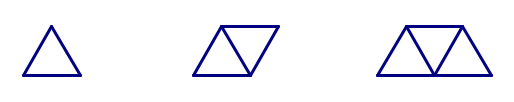
Linear and Quadratic Patterns

For each of the five patterns below, determine the number of dots (or lines) in the 1st through 4th step. Write a rule expressing the number of dots (or lines) as a function of the step number n.

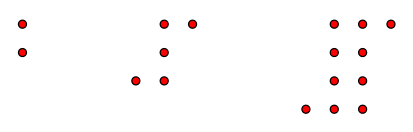
1 2 3 4 n



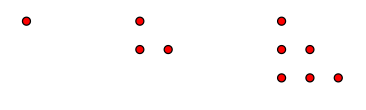
1 2 3 4 n



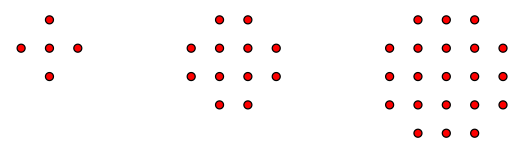
1 2 3 4 n



1 2 3 4 n



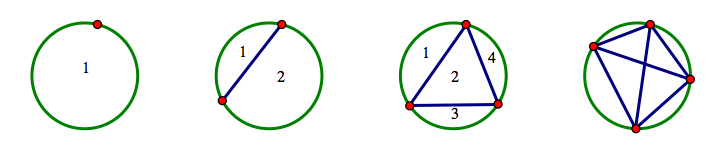
1 2 3 4 n



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Here’s a fun one. How many interior sections in step 6? Find a rule for the number of interior sections in step n. (Assume that 3 chords cannot intersect at a single interior point.)

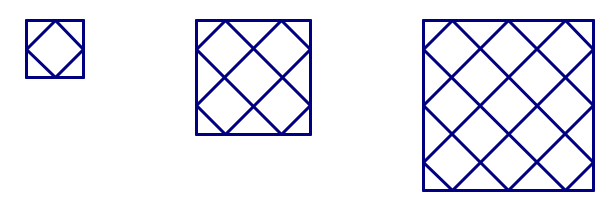
1 2 3 4



**Comparing Patterns**

The squares below are made up of full tiles (center), half tiles (edges) and quarter tiles (corners).

1 2 3



1. How many quarter tiles does step n of the pattern have?

1. How many half tiles does step n of the pattern have?
2. How many full tiles does step n of the pattern have? How do you know?
3. If the area of a full tile is 1, find the area of step n of the pattern.
4. Verify (if you haven’t already) that your total area equals the sum of the areas of the full tiles, the half tiles, and the quarter tiles.